

A NEW SUBSPECIES OF *QUARARIBEA FUNEBRIS* (BOMBACACEAE) FROM NICARAGUA

Recent monographic work has clarified the relationships among members of *Quararibea* Aublet and *Matisia* Humb. & Bonpl. (Bombacaceae) in the northern Neotropics (Alverson, 1986). Taken together, these two genera consist of at least 60 species of trees found in wet or moist, primary forests from central Mexico to Brazil. Fieldwork in Mexico, Nicaragua, and Costa Rica has resolved the taxonomy of some of the more problematic species belonging to *Quararibea* sensu stricto (subgenera *Archiquararibea* and *Lexarza* of Vischer, 1920), including *Quararibea funebris* (Llave) Vischer. This widespread species, named from Mexican material (La Llave & Lexarza, 1825; Standley, 1923), includes two subspecies in Nicaragua, subsp. *funebris* and subsp. *nicaraguensis*. The typical subspecies occurs in moist to wet lowland and mid-altitude forests from central Mexico to northwestern Costa Rica, including forests at altitudes of 300–800 m within Nicaragua. The diminutive subspecies, first described here, occurs above 1,200 m in highland forests of a restricted area of northwestern Nicaragua.

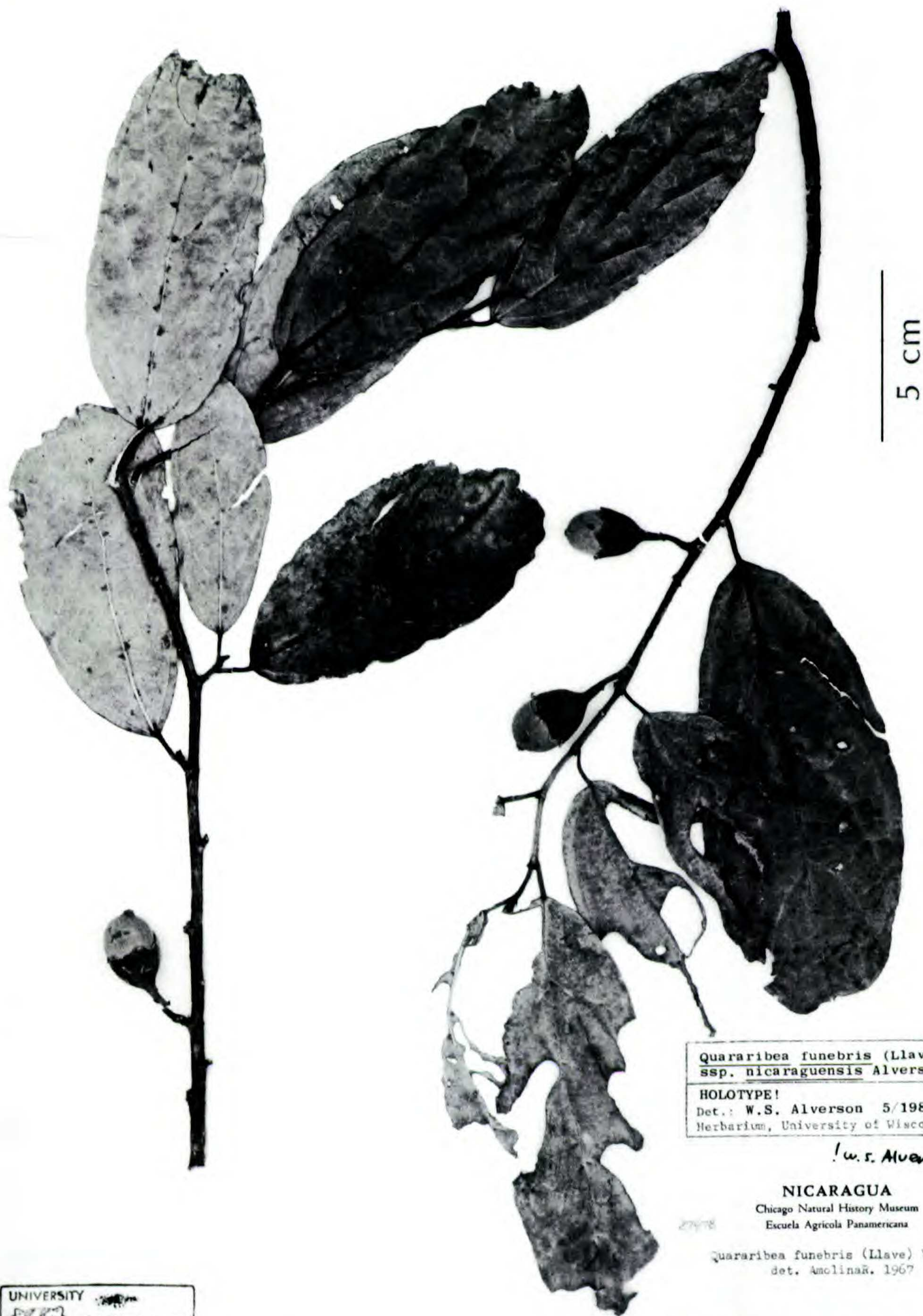
Quararibea funebris* (Llave) Vischer subsp. *nicaraguensis Alverson, subsp. nov. TYPE: Nicaragua. Matagalpa: Finca Santa María de Ostuma, Cordillera Central de Nicaragua, 1,400 m, 18 Jan. 1965 (fr), L. O. Williams, A. Molina R., T. P. Williams, D. N. Gibson & C. Laskowski 27978 (holotype, WIS; isotypes, F, NY, US). Figure 1.

Arbor, 5–25 m alta. Folia obovato-elliptica, 7–22 cm longa, 2–10 cm lata, pilorum caespitibus densis infra in venarum secundarium axillis exceptis glabrata vel sparsim pubescentia. Flores regulares, solitarii vel pauci consociati. Pedicellus 11–15 mm longus, 3 bracteolis triangularibus in medio. Petala spathulata, 15–16 mm longa, 5–6 mm lata, alba. Columna staminalis 16–22 mm longa, 24(–30?) thecis in apice fasciculatis. Stylus 17–26 mm longus. Fructus drupaceus, subglobosus, in sicco 20–25 mm longus et 14–18 mm diametro, calyce persistenti accrescenti in sicco rugoso et 11–13 mm longo per $\frac{1}{3}$ – $\frac{1}{2}$ longitudinis inclusus. Subspecies typicae similis sed praeter pedicellos saepius longiores in omnes partes minor.

Tree, 5–25 m tall, 25–30 cm dbh, monopodial; *trunk* smooth and slightly fluted; *branches* verticillate, diverging horizontally from trunk and

drooping along distal half; *bark* pale and relatively smooth, not conspicuously peeling; *stipules* deciduous, narrowly triangular, 2–5 mm long, 1 mm wide, densely lepidote with fimbriate-peltate trichomes. *Leaves* simple (unifoliolate?), alternate, entire; *petioles* 7–18 mm long, including the inconspicuous proximal and distal pulvini, green, densely lepidote; *blades* entire, obovate to elliptic, the apex acute to acuminate, the base acute to rounded, 7–22 cm long, 2–10 cm wide, dark green, lustrous and glabrate above, medium green, duller, and glabrous to sparsely pubescent below, firm-chartaceous; *veins* prominent below; *secondary veins* 5–7 per side, pinnate, arched, loosely brochidodromous, bearing conspicuous domatia in their axils; *tertiary veins* reticulate. *Flowers* solitary or few together; *pedicels* 11–15 mm long, densely puberulent with pale yellowish-brown echinate-stellate trichomes, bearing 3 bracteoles, these broadly triangular, ca. 1.5 mm long, 1.5 mm broad at base; *calyx* infundibuliform, irregularly lobed at summit, 9–11 mm long, pale green, densely pubescent with pale stellate-echinate trichomes without, densely sericeous with long, pale, ascending trichomes within, the apical lobes bluntly triangular, to 3 mm long; *petals* spathulate, recurved at anthesis, 15–16 mm long, 5–6 mm wide, white when fresh, usually becoming sepia-brown when dried, moderately to densely pubescent with pale, lax, stellate trichomes on both sides; *staminal column* cylindric, dilated towards the toothed summit, 16–22 mm long, 1.5 mm diam., densely pubescent with pale, stellate trichomes for most of its length, becoming puberulent towards apex, bearing 24(–30?) thecae, the 5 apical teeth inconspicuous, ca. 0.5 mm long; *thecae* distinctly paired, ca. 2 mm long, 1 mm wide; *style* filiform, 17–26 mm long, exceeding the staminal column by 1–2 mm, tomentose; *stigma* capitate, ca. 2 mm diam. *Fruits* drupaceous, broadly elliptic to slightly obovate, bluntly mammillate and briefly apiculate with persistent style base, 20–25 mm long, 14–18 mm diam. when dry, 1- or 2-seeded; *exocarp* green, densely tomentose with appressed, pale, brown, stellate-echinate trichomes, these imparting a brown color when dried; *mesocarp* fibrous-fleshy, without conspicuous taste or odor in fresh, unripe fruits; *endocarp* bony-fibrous; *pedicels* of

WIS



5 cm

Quararibea funebris (Llave) Vischer
ssp. nicaraguensis Alverson
HOLOTYPE!
Det.: W.S. Alverson 5/1986
Herbarium, University of Wisconsin (WIS)

W.S. Alverson 6/1980

NICARAGUA

Chicago Natural History Museum
Escuela Agrícola Panamericana

Quararibea funebris (Llave) Vischer
det. Amolina, 1967

Large tree.
Montane rain forest or cloud forest, Finca Sta. María de Ostuma, Cor-
dillera Central de Nicaragua, Department of Matagalpa, alt. 1400 m.,
January 18, 1965.

Louis O. Williams, Antonio Molina R., Teresa P. Williams, Dorothy N. Gibson,
and Chester Laskowski.



FIGURE 1. Holotype of *Quararibea funebris* subsp. *nicaraguensis*.

fruits slender, 10–19 mm long, bearing 2–3 persistent bracteoles near middle; *calyx* persistent, accrescent, cupulate, enclosing fruits for 1/3–1/2 their length, longitudinally finely rugose when dry, wingless, green, with vestiture as in flowering condition, the summit erose or irregularly toothed. *Seeds* 2, or 1 by abortion, ca. 13 mm long, 8 mm diam., consisting mostly of pale cotyledonal tissue; *testa* thin, dark brown. *Seedlings* unknown when young, probably hypogeal and cryptocotylar, when older bearing leaves smaller and more acuminate than those of mature plants.

Paratypes. NICARAGUA. ESTELÍ: El Zacatón, “El Delirio” camino a la laguna de Miraflor, 13°13’N, 86°14’W, 1,400 m, 11 Jan. 1984 (fr), *Moreno 22676* (MO, WIS). JINOTEGA: entre Santa Lastenia y entrada a Aranjuez, 13°02’N, 85°55’W, 1,200–1,250 m, 19 Jan. 1984 (fr), *Sandino 4704* (MO); Finca Aventina, in sierra east of Jinotega, 1,400–1,500 m, 23 June 1947 (st), *Standley 10002* (F); region of Las Mercedes, sierra east of Jinotega, 1,200–1,500 m, 3 July 1947 (st), *Standley 10746* (F); vicinity of Finca San Roque, sierra east of Jinotega, 1,300–1,500 m, 5 July 1947 (fr), *Standley 10856* (F, US). MADRIZ: Cerro Volcán Somoto (Volcán Tepesomoto), 13°26’N, 86°35’W, 25 Sep. 1980 (fl), *Moreno 2892* (MO). MATAGALPA: vicinity Santa María de Ostuma, on flanks of Cerro El Picacho, immediately east of Hwy. 3, ca. 9 km north (by air) of Matagalpa, 13°00’N, 85°55’W, ca. 1,500 m, 1 Dec. 1982 (fl buds, fr), *Alverson & Moreno 1982* (BR, CR, F, MEXU, MO, NY, PMA, US, WIS); (seedling), 1984 (MO, NY, WIS); (st), 1985 (WIS); 1,420 m, 5 Jan. 1984 (fr), *Gentry, Stevens & Moreno 44034* (MO); 1,350–1,585 m, 30 Aug. 1985 (fl), *Nee 27660* (MO, WIS); Fuente Pura a 11 km de Matagalpa carretera a Jinotega, 13°01’N, 85°56’W, 1,400–1,450 m, 7 Oct. 1980 (fr), *Moreno 3381* (MO, WIS); 13°00’N, 85°55’W, 1,400–1,480 m, 1 Dec. 1982 (fr), *18951* (MO) (same locality as *Alverson & Moreno 1982*); Cordillera Dariense, Santa María de Ostuma, 10 km N of Matagalpa, 1,500 m, 12 Aug. 1977 (fl), *Neill 2323* (MO); 26 Nov. 1977 (fr), *3005* (BM, MEXU, MO); 1,500 m, 15 Jan. 1963 (fr), *Williams, Molina R. & Williams 23952* (F, G, NY, S, US); between Hda. La Harmonía and Cerro La Carlota, ca. 12°59’N, 85°53’W, 1,200–1,300 m, 10 Dec. 1983 (fr), *Stevens 22574* (MO).

Quararibea funebris subsp. *nicaraguensis* is known only from the highlands of northwestern Nicaragua in the departments of Estelí, Jinotega, Matagalpa, and Madriz. It is common to locally extremely abundant (A. Gentry, pers. comm.) in primary, upland wet forests and cloud forests between 1,200 and 1,600 m. Flowering occurs during August and September, and fruiting takes place October through January, indicating a phenology similar to that of the typical lowland subspecies.

Although very similar, this new subspecies is

TABLE 1. Comparison of the subspecies of *Quararibea funebris* in Nicaragua. Material is from Nicaragua with the exception of flowers of subsp. *funebris*, which are from northwestern Costa Rica.

Character	Subspecies	
	<i>nicaraguensis</i>	<i>funebris</i>
Leaf length	77–221	145–289
Leaf width	27–104	62–125
Petiole length	7–18	15–27
Floral pedicel length	11–15	13–14
Floral calyx length	9–11	18–20
Petal length	15–16	33–40
Staminal column length	16–22	33–34
Style length	17–26	35–36
Fruiting pedicel length	10–19	9–17
Fruiting calyx length	11–13	18–26
Fruit length	20–25	25–30

Measurements in mm.

morphologically distinct from *Quararibea funebris* subsp. *funebris*, being smaller in nearly all respects (Table 1). Its fruiting pedicels, however, tend to be longer than those of subsp. *funebris*. The two subspecies can be easily distinguished by their floral measurements. When in fruiting condition, the calyces provide the most obvious key character; they cover half or less of the mature fruit of subsp. *nicaraguensis*, as opposed to more than half in subsp. *funebris*.

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